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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,071	07/14/2003	Derek Raybould	H0003569	1262

7590 04/23/2007  
Honeywell International, Inc.  
Law Dept. AB2  
P.O. Box 2245  
Morristown, NJ 07962-9806

EXAMINER
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JOHNSON, JONATHAN J

ART UNIT	PAPER NUMBER
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1725

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/621,071	RAYBOULD ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jonathan Johnson	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1-30-07.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-20, 22-37 and 45 is/are pending in the application.
- 4a) Of the above claim(s) 45 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-37 is/are allowed.
- 6) ☒ Claim(s) 18-20 and 22-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 18-20, 22-37, 45 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-20 and 22-29 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,149,051 (Vollmer). Vollmer teaches coating a braze material onto a base material, said braze material being a mixture of Ti, Cu, Ni powders comprising 25-80% by weight Ti, 12-24% by weight Ni, and 12-22%Cu, wherein the Cu/Ni is between 0.5 and 1.0 (col. 5, ll. 28 to col. 6, l. 45); and wherein the amount of Zr present in said braze material is from 0 to 12% (col. 5, ll. 40-41, where Vollmer states that the amounts are "about . . . 15 -25 wt% Zr", which would encompass the claimed upper limit of 12 %), placing said base material with said braze material in a vacuum furnace (see examples and col. 8, ll. 6-26); heating said braze material and said base material for a given braze time to achieve thermal stability between said braze material and said base material, said heating being up to a temperature that is not more than a braze temperature of said braze material (co. 6, l. 46 to col. 7, l. 23 and figure 1-3 and examples); and forming a braze joint between said braze material and said base material (figure 3, col. 7, ll. 24-53 and examples); wherein said braze material is further comprised of a precious metal (PM), the (Cu+PM)/Ni ratio is between 0.5 and 1.0, and there is 54-76% by weight Ti (col. 5, ll. 30-45); wherein said braze material is further comprised of M, wherein M is selected from the group consisting of Fe, V, Cr,

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Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, Ge or any combinations thereof (col. 5, ll. 30-40); wherein said braze material is comprised of 30-80 wt % Ti, 10-30 wt % Ni, 10-30% Cu, and 1-20 wt % M (col. 5, ll. 35-45); wherein said braze material is further comprised of a precious metal (PM) and Zr, said Ti being 42-76 wt %, said Ni being 12-24 wt %, said Cu+PM being 12-22 wt %, said Zr being 0.5-12 wt %, and the Cu/Ni ratio is between 0.75 and 1.0 (col. 5, ll. 35-45); wherein said braze material is further comprised of 0.5-12% by wt. Zr (col. 5, ll. 35-45); wherein said braze material is further comprised of (a) wt % Ti, (b) wt % Ni, (c) wt % Cu, (d) wt % Al, (d) wt % Si, (d) wt % Nb, (d) wt % Mo, (d) wt % Co and (d) wt % Fe, wherein (a):(b):(c) are in the ratio of 11:5:4 and (d) is between 0 to 10 (col. 5, ll. 30-40); wherein said braze material is further comprised of PM and M powders and said Ti being 25-80 wt %, said Ni being 10-30 wt %, said Cu+PM being 10-30 wt %, and 1-20 wt % M (col. 5, ll. 35-50); wherein said M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, Ge or any combinations thereof (col. 5, ll. 30-50); wherein said braze material is further comprised of PM, Zr and M powders, said Ti being 25-70 wt %, said Ni being 10-30 wt %, said Cu+PM being 10-30 wt %, said Zr being 0.5-12 wt %, said M being 1-20 wt %, and the (Cu+PM)/Ni ratio is between 0.8 and 1.0 (col. 5, ll. 30-50); wherein M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd and Ge or any combinations thereof (col. 5, ll. 30-50); wherein said braze material is further comprised of Ti, Ni, Cu, Al, Si, Nb, Mo, Co and Fe powders (col. 5, ll. 30-50).

**IF IT IS FOUND THAT VOLLMER DOES NOT ANTICIPATE CLAIM 18, THEN THE**  
**103 REJECTION APPLIES.**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-20 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,149,051 (Vollmer). Vollmer teaches coating a braze material onto a base material, said braze material being a mixture of Ti, Cu, Ni powders comprising 25-80% by weight Ti, 12-24% by weight Ni, and 12-22%Cu, wherein the Cu/Ni is between 0.5 and 1.0 (col. 5, ll. 28 to col. 6, l. 45); and wherein the amount of Zr present in said braze material is from 0 to 12% (col. 5, ll. 40-41, where Vollmer states that the amounts are "about . . . 15 -25 wt% Zr"), placing said base material with said braze material in a vacuum furnace (see examples and col. 8, ll. 6-26); heating said braze material and said base material for a given braze time to achieve thermal stability between said braze material and said base material, said heating being up to a temperature that is not more than a braze temperature of said braze material (co. 6, l. 46 to col. 7, l. 23 and figure 1-3 and examples); and forming a braze joint between said braze material and said base material (figure 3, col. 7, ll. 24-53 and examples); wherein said braze material is further comprised of a precious metal (PM), the (Cu+PM)/Ni ratio is between 0.5 and 1.0, and there is 54-76% by weight Ti (col. 5, ll. 30-45); wherein said braze material is further comprised of M, wherein M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, Ge or any combinations thereof (col. 5, ll. 30-40); wherein said braze material is comprised of 30-80 wt

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%Ti, 10-30 wt % Ni, 10-30% Cu, and 1-20 wt % M (col. 5, ll. 35-45); wherein said braze material is further comprised of a precious metal (PM) and Zr, said Ti being 42-76 wt %, said Ni being 12-24 wt %, said Cu+PM being 12-22 wt %, said Zr being 0.5-12 wt %, and the Cu/Ni ratio is between 0.75 and 1.0 (col. 5, ll. 35-45); wherein said braze material is further comprised of 0.5-12% by wt. Zr (col. 5, ll. 35-45); wherein said braze material is further comprised of (a) wt % Ti, (b) wt % Ni, (c) wt % Cu, (d) wt % Al, (d) wt % Si, (d) wt % Nb, (d) wt % Mo, (d) wt % Co and (d) wt % Fe, wherein (a):(b):(c) are in the ratio of 11:5:4 and (d) is between 0 to 10 (col. 5, ll. 30-40); wherein said braze material is further comprised of PM and M powders and said Ti being 25-80 wt %, said Ni being 10-30 wt %, said Cu+PM being 10-30 wt %, and 1-20 wt % M (col. 5, ll. 35-50); wherein said M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, Ge or any combinations thereof (col. 5, ll. 30-50); wherein said braze material is further comprised of PM, Zr and M powders, said Ti being 25-70 wt %, said Ni being 10-30 wt %, said Cu+PM being 10-30 wt %, said Zr being 0.5-12 wt %, said M being 1-20 wt %, and the (Cu+PM)/Ni ratio is between 0.8 and 1.0 (col. 5, ll. 30-50); wherein M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd and Ge or any combinations thereof (col. 5, ll. 30-50); wherein said braze material is further comprised of Ti, Ni, Cu, Al, Si, Nb, Mo, Co and Fe powders (col. 5, ll. 30-50). With respect to the claimed amount of Zr, it is the examiner's position that the amounts in question are so close that it is prima facie obvious that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. v. Banner*, 227 USPQ 773.

***Claim Allowance***

Claims 30-37 are allowed.

***Response to Arguments***

With respect to the rejection made under 35 U.S.C. 102(b), applicant argues one of ordinary skill would not consider that "about 15% Zr" would include 12%Zr. This is merely an assertion with no basis in fact. Applicant is reminded that the arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Applicant is invited to submit an affidavit or declaration showing one of skill in the art would not consider "about 15%" to include 12%.

The declaration under 37 CFR 1.132 filed 1-30-07 is insufficient to overcome the rejection of the claims because the declaration is not commensurate in scope with the claims. In particular:

1. Mr. Raybold discusses brazing in generalities-- without regard to the specific braze composition-- in sections 7 and 8. Nowhere does Mr. Raybold explain why one of ordinary skill would not interpret "about 15% Zr" to include 12%.
2. Mr. Raybold explains in detail that braze chemistry must be tightly controlled. Mr. Raybold, however, does not explain why one of ordinary skill should not begin with a Zr composition of 12% and then tightly control that composition. That is, Mr. Raybold has not explained why one of ordinary skill in the art would not have read "about 15% Zr" to include 12% Zr.

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3. Mr. Raybold's reference to 10 C change in braze temperature is merely an assertion with no basis in fact. Presumably, Mr. Raybold's information comes from the Figure shown in applicant's arguments at page 12 of 15, but this Zr/temperature graph does not show what TiCuNiZr composition is being tested. It is not known whether this graph represents the claimed TiCuZiZr composition or some other composition altogether.

4. Mr. Raybold references heat exchanger in section 9, however heat exchangers are not claimed.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



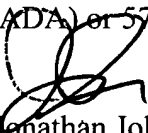
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Johnson whose telephone number is 571-272-1177.

The examiner can normally be reached on M-Th 7:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jonathan Johnson  
Primary Examiner  
Art Unit 1725